

## LITERATURE CITED

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ENTOMOLOGY.—*A synopsis of the Nearctic species of Elachiptera and related genera (Diptera, Chloropidae).*<sup>1</sup> CURTIS W. SABROSKY, U. S. Bureau of Entomology and Plant Quarantine.

Flies of the genus *Elachiptera* Macquart (*sensu lato*) are common in general collecting, and an up-to-date key for their ready identification should be useful. Certain species, apparently abundant and widely distributed, have in the past been generally identified upon certain gross features, a practice that has concealed the presence of some unnamed species with less apparent characteristics, such as the presence or absence of pollen on the ocellar tubercle.

The frequent appearance of these flies in rearing cages has sometimes caused them to be recorded in the literature as pests of various plants. Available evidence suggests, however, that the larvae probably feed upon decaying organic matter, such as old leaf sheaths, or decaying plant tissue and grass following damage by other insects.

Generic limits are difficult to define, especially when more than one faunal region is considered, in the large group of species that may be referred to as the "*Elachiptera* complex." The flattened arista and the marginal scutellar tubercles, two of the most distinctive features of "typical" *Elachiptera* (*brevipennis*, *costata*, etc.), are subject to a wide range in development in different species. Whatever the character used, there seems always to be an otherwise characteristic species that is an exception. As for the various genera that have been erected for species of this complex (*Elachiptera* Macquart, *Melanochaeta* Bezzi, *Doliomyia* Johannsen, *Crassiseta* Loew, *Eribolus* Becker), the definition of what is a distinct genus, what a subgenus, and what a synonym is extremely difficult. In this paper

*Eribolus* is recognized as a distinct genus, and *Crassiseta* and *Doliomyia* are considered as synonyms of *Elachiptera* (*sensu stricto*). *Doliomyia* has a peculiar type of abdomen that might seem to merit separate status for that name, but many species of *Elachiptera* show some lengthening of the basal segment, and in Africa there are several species which nearly match the extreme condition in *D. longiventris* Johannsen.

The status and relationships of *Melanochaeta* need much further study, and its species have not been included here. In recent years it has often been considered a subgenus of *Elachiptera*. One new species, *M. kaw*, is described here because the past confusion with *Monochaetoscinella nigricornis* (Loew) would otherwise leave a common form without a name.

Recognition of the relation of *E. (Melanochaeta) nigricornis* (Loew) to *Monochaetoscinella* Duda brings the latter name into the *Elachiptera* complex. Its genotype, the Neotropical *M. anonyma* (Williston), has a slender, *Oscinella*-type arista, and its affinities had been supposed to be with *Oscinella*. It is now realized, however, that *nigricornis* (with flattened arista) and *anonyma* (with slender arista) have the same fundamental features of generic significance, and that the development of the arista in the former is only a specific character in that case. Because of other distinctive characteristics, and because the few known species are Neotropical to southern United States, I recognize it here as a genus distinct from *Elachiptera*.

All ratios used in the key and descriptions are based on measurements with an ocular micrometer, and not on estimates.

<sup>1</sup> Received August 18, 1948.

For greater precision in the measures used, the width of the front is defined as the distance between the eyes across the posterior ocelli, the length of the front is the distance from the anterior margin of the front at the midline to an imaginary line between the posterior ocelli, and the basal width of the scutellum is measured between the two lateral points where the disk of the scutellum touches the mesonotum. It is especially important to note the last, for sometimes the sides of the scutellum as they slope downward and outward from the base make the basal width appear greater in proportion to the length than it really is.

Most of the species of this complex will pass to *Crassiseta* in Curran's *The families and genera of North American Diptera* (1934) and to *Elachiptera* in Williston's *Manual* (1908), on the basis of the following characters: Costa extending to the fourth longitudinal vein, hind tibia without a spur, second costal sector longer than the third sector or at least not remarkably abbreviated, and arista flattened and ensiform. The species which will be difficult to place here without comparative study are those with slender, atypical arista. The 1 +1 notopleural bristles, erect and cruciate ocellars and post-verticals, and the presence (except in *E. aliena*) of 1 or 2 pairs of outstanding fronto-orbitals (Figs. 5, 6) are other features that will aid in segregating this group.

#### KEY TO THE NEARCTIC SPECIES OF ELACHIPTERA MACQUART AND RELATED GENERA

1. Frontal triangle subshining or with a leaden-gray luster, the entire surface covered with fine gray tomentum or pollen; mesonotum and scutellum with same habitus as triangle, the former characteristically flattened between the dorsocentral lines on posterior half to two-thirds of notum; scutellum flattened and short, less than 0.7 times as long as broad at base (*Eribolus* Becker) . . . . . 2
- Triangle entirely or predominantly smooth and polished, sometimes with pollen on and around ocellar tubercle; mesonotum usually polished black, or with three stripes of pollen, occasionally broadly pollinose between and including the dorsocentral lines . . . . . 4
2. Legs predominantly bright yellow, fore coxa

always, fore femur entirely or predominantly, and mid and hind femora basally, yellow; palpus yellow in males, more or less infuscated in females (eastern half of North America) . . . . .

1. *Eribolus longulus* (Loew)  
Legs predominantly black, fore coxa always, and all femora except knees narrowly, black (northern and northwestern) . . . . . 3
3. Antenna entirely black, or virtually so; palpus black in both sexes. . . . .
2. *Eribolus sudeticus* Becker  
Antenna in large part yellow to orange, often only the dorsal fourth of third segment black; palpus yellow in both sexes. . . . .
3. *Eribolus nearcticus*, n. sp.
4. Scutellum of *Oscinella* type (Fig. 9), short and broadly rounded apically, 0.67–0.8 times as long as width at base, the disk gently convex; marginal scutellar bristles not borne on tubercles, one pair of widely separated apicals and one pair of weak subapicals; mesonotum and scutellum smooth, the piliferous punctures fine and inconspicuous, the regularly convex surfaces never densely and coarsely punctured or rugose . . . . . 5
- Scutellum not as above, more or less trapezoidal in outline and often apically subtruncate (Figs. 10–12), usually somewhat elongate, typically 0.9–1.25 times the width at base (if as short as 0.75, then the marginal scutellars on distinct tubercles); marginal scutellar bristles borne on more or less distinct tubercles, with somewhat approximated apicals and 2–3 pairs of subapicals; mesonotum and scutellum almost always coarsely punctured, usually so densely that the surface appears strongly rugose, in profile the posterior half of mesonotum and the disk of scutellum obviously flattened (*Elachiptera*, *sensu stricto*) . . . . . 7
5. One pair of long, unusually strong, black, and outstanding fronto-orbital bristles (Fig. 5); cheek divided by a diagonal line into a whitish pollinose anterodorsal and a polished black posteroventral portion (*Monochaetoscinella* Duda) . . . . . 6
- Not as above, usually with two pairs of slender, pale fronto-orbitals that are longer than the others in fronto-orbital row (cf. Fig. 6), sometimes with none that are outstanding; cheek not so divided, pollinose along entire lower margin of eye. . . . .
4. *Monochaetoscinella anonyma* (Williston)  
Arista broadly flattened basally, strongly tapering, densely and evenly long haired, the appearance that of typical *Elachiptera* (as in Fig. 7, but tapering from base to apex) (southeastern United States) . . . . .
5. *Monochaetoscinella nigricornis* (Loew)

## ELACHIPTERA, SENSU STRICTO

7. Basal segment of abdomen peculiarly elongated and developed as a basal plate occupying, in dorsal view, all but tip of abdomen, its length greater than that of mesonotum and scutellum combined.....8
6. *Elachiptera* (*E.*) *longiventris* (Johannsen)  
Abdomen without such an elongated basal plate, the basal segment at most half the length of abdomen.....8
8. Fronto-orbitals hairlike, short and all of approximately the same length, none outstanding; mesonotum densely and finely punctured, with no obvious rows of punctures; arista as in *Gaurax*, slender and sparsely short haired.....9
- .....7. *Elachiptera* (*E.*) *aliena* Becker  
Two pairs of bristles long and outstanding in fronto-orbital row (Fig. 6); mesonotum less densely punctured, at least median and dorsocentral rows distinct; arista usually thickened and densely pubescent, often flattened and ensiform.....9
9. Pleuron entirely or largely reddish yellow, or entire thorax reddish.....10
- Thorax entirely black.....15
10. Scutellum reddish yellow; mesonotum usually reddish yellow, at most narrowly black at neck.....11
- Scutellum black; mesonotum at least partly black.....13
11. Mesonotum almost entirely polished, with only a notopleural spot and a narrow prescutellar band of pollen.....12
- .....8. *Elachiptera* (*E.*) *willistoni*, n. sp.  
Mesonotum with a broad median stripe of fine bright pollen, or entirely pollinose.....12
12. Scutellum like *E. costata* (cf. Fig. 12), with two pairs of strong marginal tubercles and a weak, basal third pair; mesonotum apparently pollinose on its entire surface....
- .....9. *Elachiptera* (*E.*) sp. (North Carolina)  
Scutellum like *E. willistoni* (cf. Fig. 10), trapezoidal, apical pair of tubercles weak and subapical scarcely distinguishable; mesonotum with a broad median stripe of fine, bright pollen, between and including the dorsocentral lines.....14
- .....10. *Elachiptera* sp. (District of Columbia)
13. Mesonotum reddish on sides, with a broad median black stripe, gray pollinose; scutellum long conical with three pairs of strong tubercles.....11. *Elachiptera* (*E.*) *tau*, n. sp.  
Mesonotum entirely black, only the pleuron reddish yellow.....14
14. Mesonotum typically with three stripes of gray pollen, in median and dorsocentral positions; scutellum as in *E. costata* (cf. Fig. 12), with three pairs of strong marginal tubercles.....13
- .....13. *Elachiptera* (*E.*) *erythropleura*, n. sp.  
Mesonotum polished, without stripes of pollen, and with only a narrow prescutellar band of pollen; scutellum strongly narrow, three pairs of tubercles close together on distal half, the tubercles less distinct than in *costata* and *erythropleura*....
- .....14. *Elachiptera* (*E.*) *angusta*, n. sp.
15. Scutellum flattened and elongate, trapezoidal in outline, with three pairs of long, well-developed scutellar tubercles, the apical tubercles strong, obviously longer than broad (Fig. 12); disk of mesonotum broadly pollinose.....12. *Elachiptera* (*E.*) *costata* (Loew)  
Scutellum usually shorter and somewhat rounded apically, sometimes narrowed apically, the 2 or 3 pairs of marginal tubercles distinct but small, each not as long as broad (Fig. 11); mesonotum entirely shining or with three stripes of gray pollen rarely the stripes merged together.....16
16. Both frontal triangle and ocellar tubercle smooth and polished, without pollen; disk of mesonotum never with stripes of pollen.....17
- Frontal triangle polished; ocellar tubercle distinctly gray pollinose,<sup>2</sup> or if shining, the mesonotum with 2 or 3 stripes of gray pollen.....20
17. Front obviously longer than broad, length 1.1 times the width at vertex (Fig. 14); mesonotum likewise appearing longer than broad, length actually 1.09–1.1 times its width.....17
- .....17. *Elachiptera* (*E.*) *angustifrons*, n. sp.  
Front appearing approximately as long as broad, length usually 0.83–0.96 times the width at vertex, occasionally the length and width subequal (Fig. 13); mesonotum appearing nearly square, measuring 0.90–1.04 times as long as broad.....18
18. Legs predominantly yellow, including all coxae and femora; fore and hind tibiae black; frontal triangle shorter and with sides less convex than in *nigriceps* and *angustistylum*.....16
- .....16. *Elachiptera* (*E.*) *pechumani*, n. sp.  
Legs more extensively patterned with black, including distal one-third to two-thirds of mid and hind tibiae; frontal triangle large and occupying most of front (Fig. 13), reaching anterior margin of front, or nearly so, and with strongly convex sides.....19
19. Arista broad and flat, ensiform, sides parallel nearly to tip, its width one-half to four-fifths that of cheek (Fig. 7).....15
- .....15. *Elachiptera* (*E.*) *nigriceps* (Loew)  
Arista narrower, in female two-fifths or less the height of cheek, in male slender and only slightly thickened, in both sexes narrowing from base to tip (Fig. 8).....18
- .....18. *Elachiptera* (*E.*) *angustistylum*, n. sp.
20. Hind femur strongly incrassate, its greatest width 2–2.8 times the diameter of hind tibia; disk of mesonotum with three distinct stripes of gray pollen; frontal triangle

<sup>2</sup> In greasy or rubbed specimens, the shiny appearance may be misleading.



- long; arista broad and flat on its entire length. 19. *Elachiptera* (*E.*) *formosa* (Loew)  
Hind femur not strongly incrassate, its greatest width about 1.5–1.85 times the diameter of hind tibia; at least one other character not as above.....21
21. Arista broad and flat for its entire length, sides parallel nearly to apex (cf. Fig. 7), its width equal to at least half the distance between posterior ocelli, usually fully equal to the distance; frontal triangle only three-fourths the length of front; mesonotum with 2 or 3 stripes of gray pollen.....22  
Arista narrower and tapering from base to apex, not broad and flat as above, its width midway only subequal to a single posterior ocellus.....23
22. Ocellar tubercle distinctly bright gray pollinose (widespread, northern United States)  
....20. *Elachiptera* (*E.*) *vittata*, n. name  
(= *E. bilineata* Adams, preoc.)  
Ocellar tubercle polished black (California)..  
....21. *Elachiptera* (*E.*) *californica*, n. sp.
23. Frontal triangle long, its apex nearly reaching anterior margin of front; front relatively long, its length 1.0–1.07 times the width at vertex.....  
....22. *Elachiptera* (*E.*) *penita* (Adams)  
Frontal triangle shorter, only three-fourths the length of front; front relatively broad, its length only 0.87–0.96 times the width at vertex.....24
24. Thorax polished, without pollen except on notopleura and around bases of wings....  
....23. *Elachiptera* (*E.*) *knowltoni*, n. sp.  
Thorax typically with two narrow stripes of gray pollen.....25
25. Frontal triangle black, and cheeks and posterior portion of front predominantly brown to blackish, the head appearing dark (Alaska to Colorado).....  
....24. *Elachiptera* (*E.*) *decipiens* (Loew)  
Triangle reddish to brown, and front, face and cheeks bright yellow, the head appearing bright (California, Oregon, Idaho).....  
.....25. *Elachiptera* (*E.*) *flaviceps*, n. sp.

#### Genus *Eribolus* Becker

*Eribolus* Becker, Archivum zoologicum 1: 127. 1910. (Type, *E. sudeticus* Becker, by designation of Enderlein, 1911.)

Becker, followed by Enderlein, Duda, and other workers, recognized this as a distinct genus, based on three European species with a rather uniform habitus of flattened, leaden-gray mesonotum, leaden-gray frontal triangle, and slender, slightly thickened arista. Otherwise, its fundamental characters are the same as in *Elachiptera*, notably the 1+1 notopleural bristles, ocellar and postvertical bristles erect and cruciate, two pairs of fronto-orbital bristles well developed and standing out over the ad-

joining orbital hairs, eyes with minute and sparse pubescence, and similar wing venation.

The slightly thickened arista seemed distinct enough in the Palearctic fauna, compared with the broadly flattened, ensiform arista of most of the European species of *Elachiptera*. In North America, however, there is a species which is unquestionably congeneric with *Eribolus* species of Europe, but the arista is somewhat variable, and sometimes, especially in the female sex, it may be definitely (though narrowly) ensiform, as in typical *Elachiptera*. This species, which is quite common in eastern North America, has usually been recorded as *Elachiptera longula* (Loew), or sometimes in combination with the names *Crassiseta* or *Melanochaeta*, but it is placed here in *Eribolus*.

#### 1. *Eribolus longula* (Loew), n. comb.

*Crassiseta longula* Loew, Berl. Ent. Zeitschr. 7: 34. 1863. (Centuria III, No. 64.) (District of Columbia.)

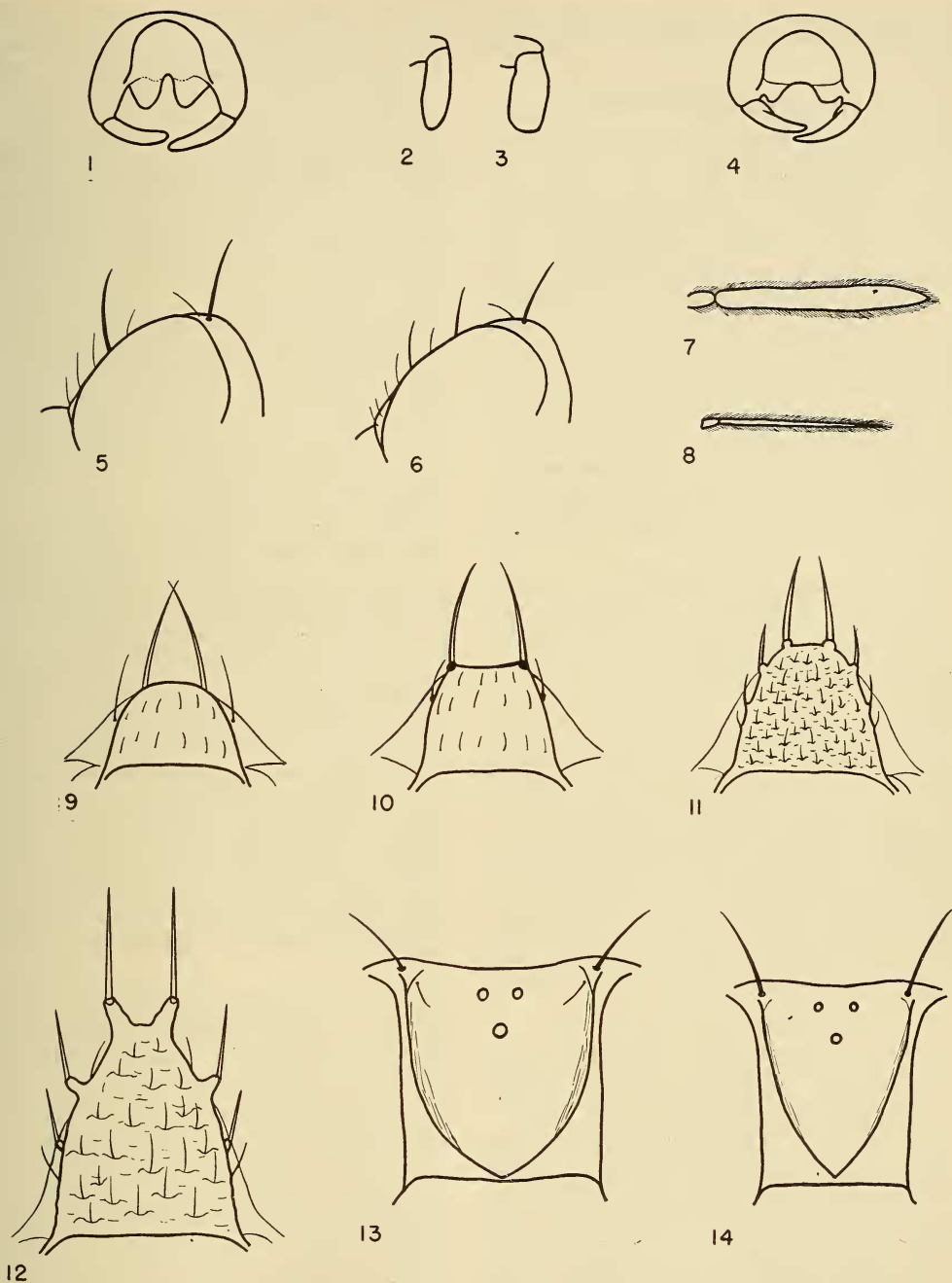
*Melanochaeta longula* (Loew) Becker, Ann. Mus. Nat. Hung. 10: 83. 1912.

*Melanochaeta intermedia* Becker, *ibid.* 10: 83. 1912. (Pennsylvania.) New synonymy (from holotype in Melander Collection).

The typically bright yellow legs will distinguish this form from either *sudeticus* or *nearcticus*. A few northern and northwestern specimens have been seen in which the areas of infuscation on the mid and hind femora are somewhat more extensive than usual, and even the fore femur may be dusky on the distal half, but the fore coxa and the bases of all femora are always characteristically yellow. The male genitalia are easily distinguished from either of the dark-legged species by the widely spaced cerci (Fig. 4), which are separated from each other by a distance greater than the width of either. The genital forceps, in side view, are narrower than those of *nearcticus*, and are proportioned approximately like those of *sudeticus*, being about four times as long as broad (cf. Fig. 2).

The species is one of the most common and widely distributed chloropids east of the Rocky Mountains. Numerous records are available from Ontario, Quebec, the District of Columbia, and 28 states: Arkansas, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Ohio,





FIGS. 1-4.—Male genitalia of *Eribolus*: 1, *E. sudeticus*, posterior aspect; 2, *E. sudeticus*, side view of forceps; 3, *E. nearcticus*, side view of forceps; 4, *E. longulus*, posterior aspect. FIGS. 5, 6.—Profile of upper half of the head of *Monochaetoscinella nigricornis* (5) and *Elachiptera nigriceps* (6). FIGS. 7, 8.—Side view of arista of *Elachiptera nigriceps* (7) and *E. angustistylum* (8). FIGS. 9-12.—Outline of dorsal aspect of scutellum of *M. nigricornis* (9), *Elachiptera willistoni* (10), *E. nigriceps* (11), and *E. costata* (12). FIGS. 13, 14.—Front and frontal triangle of *E. nigriceps* (13) and *E. angustifrons* (14). Drawings of *willistoni* and *angustifrons* from holotypes, *angustistylum* from female paratopotype, *nearcticus* from male paratopotype, others from determined material.

Oklahoma, Pennsylvania, South Dakota, Tennessee, Texas, Virginia, Wisconsin, and Wyoming.

## 2. *Eribolus sudeticus* Becker

*Eribolus sudeticus* Becker, Archivum zoologicum 1: 127, 138. 1910. (Europe.)

*Oscinella planicollis* Becker, Ann. Mus. Nat. Hung. 10: 114. 1912. (Idaho.) New synonymy.

From Duda's detailed redescription, and from European material available for comparison, I accept *sudeticus* as a Holarctic species. The male genitalia (Fig. 1) are distinct from those of *longulus* or *nearcticus* in the nearness of the cerci, which are separated from each other by a space only one-third the width of the base of a cercus. Each genital forceps in side view is relatively narrow (Fig. 2), about three and one-half times as long as broad and obviously narrower than in *nearcticus*, the other dark-legged species.

The synonymy of *planicollis* had already been noted by Malloch and accepted by Aldrich (Aldrich Card Catalogue), but it does not appear to have been published. I have seen the type, and concur in the conclusion as to its status.

Distribution: Northern, especially northwestern. Numerous specimens have been seen from 12 states (California, Colorado, Idaho, Michigan, Minnesota, Montana, North Dakota, South Dakota, Utah, Washington, Wisconsin, Wyoming), from six Canadian provinces (Alberta, British Columbia, Manitoba, Northwest Territory, Ontario, Quebec), and from Alaska (Fairbanks, Matanuska, Healy).

## 3. *Eribolus nearcticus*, n. sp.

Near *Eribolus sudeticus*, with black coxae and femora, but the antenna largely yellow to orange and the palpus yellow in both sexes.

*Male, female*.—Head predominantly black, anterior third of front and basal segments and lower two-thirds to three-fourths of the third segment of antenna yellow to orange, palpus bright yellow in both sexes; frontal triangle slightly shorter than in *longulus*, only 0.78–0.85 times the length of front; the two pairs of well developed fronto-orbital bristles distinctly longer than the adjoining hairs, but relatively short and inconspicuous compared with species of *Elachiptera*; arista pubescent, thickened at base and slightly thickened the rest of its length, but not at all flattened.

Thorax black, the entire dorsum, metathorax, and upper half of the pleuron thickly covered with dully shining, lead-gray pollen. Abdomen brown, only sparsely covered with gray pollen and thus rather shining. Legs with all coxae and femora, except knees narrowly, black, the tibiae and tarsi yellow, in dark specimens the distal tarsal segments infuscated and the hind tibia with a median brown band. Wing venation as in *longulus*. Halter lemon yellow.

Male genitalia intermediate between those of *sudeticus* and *longulus* (Figs. 1 and 4), the cerci separated from each other by a space approximately the width of one cercus; genital forceps broad and paddle-shaped, only 2.3 times as long as broad (Fig. 3).

Length, 1.5–2.5 mm.

*Type*.—Male, U.S.N.M. no. 58861.

Holotype male, and allotype, near Bottineau, Turtle Mountains, N. Dak., June 21, 1918 (J. M. Aldrich) [U.S.N.M.]. Paratypes: 8 (6 ♂♂, 2 ♀♀), same data as type; 1 ♀, New Ulm, Minn., May 30, 1916 (Aldrich); 1 ♂, Buckeye, Wash., June 21, 1930 (Aldrich); 5 ♂♂, Fairbanks, Alaska, July 1–3, 1921 (Aldrich); 1 ♀, Treesbank, Manitoba, August 27, 1915 (N. Criddle); 2 (♂, ♀), Aweme, Manitoba, September 4, 1916 (N. Criddle); 1 ♂, Toronto, Ontario, October 6, 1891 (Wm. Brodie) [U.S.N.M.]; 2 ♂♂, East Lansing, Mich., May 28, 1940 and April 29, 1942 (C. W. Sabrosky); 1 ♂, Ramsey County, Minn., September 14, 1925 (Sam Kepperley) [Sabrosky Coll.].

The new species is distinguished from *longulus* and from the Holarctic *sudeticus* as outlined in the key. Of the two other species known from Europe, *hungaricus* Becker has an unusually short frontal triangle (usually about half the length of the front) and black palpi in both sexes, and both *hungaricus* and *slesvicensis* Becker have the anterior basal cell more or less broadened. I have seen no material of the latter species, which is apparently similar to *nearcticus* in most respects, but the series of *hungaricus* sent me some years ago by Dr. Duda shows clearly the distinctly broadened cell. Inasmuch as *slesvicensis* was described as having the same type of cell as *hungaricus*, and our American form does not have this type of cell, I accept the latter as a distinct species, even though only that one difference can be stated at the mo-

ment. All three species occurring in North America have the basal cell elongate and narrow, not at all broadened.

#### Genus *Monochaetoscinella* Duda

*Monochaetoscinella* Duda, Folia Zool. Hydrobiol. 2: 107. 1930. (Type, *Oscinis anonyma* Williston, by designation of Duda, 1931.)

The genus *Monochaetoscinella* was segregated from *Oscinella* particularly on the basis of the single pair of long, strong fronto-orbital bristles (Fig. 5). Because the hitherto known species have a slender arista (*anonyma*, *nigripes* Duda, *zernyi* Duda), it has been considered that they are related to *Oscinella*. However, recognition of the fundamental relationship of *Elachiptera nigricornis* (Loew) to *anonyma* and the others, and the flattened, typically *Elachiptera*-like arista of *nigricornis*, now seem to place the genus *Monochaetoscinella* in proper perspective in the *Elachiptera* complex.

The generic characters, other than the single pair of strong fronto-orbitals, are like those of *Elachiptera*: eye distinctly pubescent; ocellar and postvertical bristles erect and cruciate, the former short and weak, the latter long and strong, like the outer verticals; inner verticals weak and hairlike; notopleural bristles 1+1; scutellum short and broadly rounded, as in the subgenus *Melanochaeta* and the genus *Oscinella*, only three-fourths as long as width at base, with one apical and one subapical pair of bristles, the former long, strong, and widely separated, the latter weak and hairlike, neither on tubercles.

In both *anonyma* and *nigricornis*, the cheek is divided into two distinct areas by a slight ridge or line running from the postero-ventral angle of the eye to the vibrissal angle. The anterodorsal area, between the vibrissa and the eye, is whitish pollinose; the posteroventral area is black, smooth and highly polished.

#### 4. *Monochaetoscinella anonyma* (Williston)

*Oscinis anonyma* Williston, Trans. Ent. Soc. London for 1896; 423. (St. Vincent, West Indies.)  
*Monochaetoscinella anonyma* (Williston) Duda, Folia Zool. Hydrobiol. 2: 107. 1930.

This species is Neotropical, but it is included here for comparison with *nigricornis* because it is the genotype of *Monochaetoscinella* and also because it is known to occur in Bermuda, and at Key West, Fla., and Tampico, Mexico, and may be expected to be found, at least occa-

sionally, in southern Texas and southern Florida.

The frontal triangle and thorax are predominantly shining and highly polished black, but the ocellar tubercle and scutellum are pollinose and there is a narrow prescutellar band of pollen. The legs are predominantly deep yellow, including all coxae and femora, the fore tibia and fore tarsus are black, and mid and hind tibiae and tarsi are predominantly yellow but may be slightly infuscated.

The species is apparently quite common, for there are a number of published records from Puerto Rico, Bolivia, Peru, Brazil, Costa Rica, Panama, and the Canal Zone, and I have seen numerous examples from Puerto Rico, Cuba, Jamaica, Mexico, Guatemala, Panama, Bolivia, Brazil, and Bermuda. This is probably the species recorded as *Oscinis umbrosa* Loew by C. W. Johnson (1913) in a paper on the Diptera of Bermuda (Ann. Ent. Soc. Amer. 6: 443-452. 1913).

#### 5. *Monochaetoscinella nigricornis* (Loew), n. comb.

*Crassiseta nigricornis* Loew, Berl. Ent. Zeitschr. 7: 34. 1863. (Centuria III, No. 65.) (Louisiana.)  
*Melanochaeta nigricornis* (Lw.) Becker, Ann. Mus. Nat. Hung. 10: 83. 1912.

This species agrees with the description given for *anonyma*, but differs mainly by its flattened and densely haired, *Elachiptera*-like arista. The present writer and other dipterists have erred in identifying *nigricornis* as a wide-ranging species of eastern United States. On the contrary, careful reexamination of the material shows that two species have been confused by close superficial similarity, and that true *nigricornis* is in reality distinctly a species of southeastern United States, and belongs in the genus *Monochaetoscinella*. The other species belongs in *Melanochaeta* and is described below.

Distribution: Southeastern United States. I have seen material of typical *nigricornis* from Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Texas. The northernmost records that I have are Raleigh, N. C., Knoxville and Nashville, Tenn., and Fayetteville, Ark.

#### *Melanochaeta kaw*, n. sp.

*Crassiseta (Melanochaeta) nigricornis* Loew, in part, of Sabrosky, Trans. Amer. Ent. Soc. 61: 246. 1935.



Shining black species with bright yellow legs, resembling *Oscinella umbrosa* (Loew) except for the flattened and long-haired arista, and differing from the superficially similar *Monochaetoscinnella anonyma* as noted in the key.

*Male, female*.—Head, including antenna and palpus, black, the cheek and anterior half of front paler, brown to dark reddish; thorax entirely black; abdomen brown; legs, including all coxae, bright yellow, at most the distal segment or two of each tarsus browned; halter pale lemon yellow to whitish yellow; wing hyaline, lightly tinted with brown.

Eye short pubescent; front at the vertex one and one-half times the width of an eye and 0.40–0.45 times the width of the head, but appearing relatively narrow because the length of the front is slightly greater than the width; frontal triangle smooth and polished, large and occupying most of front, the basal corners nearly touching the eyes at the vertex and the apex reaching the anterior margin of front; cheek narrow, almost linear, dull and finely pollinose; third antennal segment reniform, 1.7 times as broad as long; arista rather broadly flattened basally but narrowing to apex, the entire length densely covered with long hairs whose length is subequal to the greatest width of the flattened portion, the total effect as seen under low magnification being that of an arista broadly flattened clear to the apex.

Thorax smooth and polished, only the scutellum subshining and covered with gray pollen; piliferous punctures on mesonotum fine and inconspicuous, rather sparse.

Second costal sector of wing 1.3 times the length of third sector: third vein gently curved forward apically, the third and fourth veins diverging slightly; fore crossvein at the middle of the discal cell.

Length, 1.5–1.75 mm.

*Type*.—Male, U.S.N.M. no. 58870.

Holotype male and allotype, Manhattan, Kans. (C. W. Sabrosky), the type collected June 9, 1934, the allotype September 20, 1933. Types deposited in the U. S. National Museum. Paratypes: 4 (2 ♂♂, 2 ♀♀), Manhattan, Kans., October 4, 1933, May 21, 26, and June 26, 1934 (C. W. Sabrosky); 6 (4 ♂♂, 2 ♀♀), Manhattan, Kans., August 29 and September 15, 1930, June 1 and 4, 1932 (D. A. Wilbur); 2 ♀♀, State Lake, Ottawa County, Kans., June 24, 1934 (C. W. Sabrosky); 1 ♂, Falls

Church, Va., June 16 (N. Banks) [Sabrosky Coll.]; 2 ♀♀, Chesapeake Beach, Md., August 19 and May 30, 1919 (J. M. Aldrich); 1 ♀, Gatlinburg, Tenn., 5600 ft., July 2, 1947 (R. H. Whittaker); 2 ♀♀, Plano, Tex., June 1907 (E. S. Tucker, determined as *Elachiptera nigricornis*) [U.S.N.M.]; 1 ♀, Cheboygan County, Mich., July 18, 1940 (R. I. Sailer) [Kansas Univ. Coll.].

The species is named for an Indian tribe which formerly lived along the Kansas River.

### Genus *Elachiptera* Macquart

*Elachiptera* Macquart, Histoire naturelle des insectes: Diptères 2: 621. 1835. (Type, *Chlorops brevipennis* Meigen, by original designation and monotypy.)

#### 6. *Elachiptera* (E.) *longiventris* (Johannsen)

*Melanochaeta* (*Doliomyia*) *longiventris* Johannsen, Can. Ent. 56: 89. 1924. (New York.)

The peculiar abdominal structure will separate this species from any other chloropid in North America. In most respects, it is somewhat intermediate between *Elachiptera* and *Eribolus*, but favoring the former. As noted in the introduction, I regard the subgenus *Doliomyia*, proposed for *longiventris*, as a synonym of typical *Elachiptera*, rather than of *Melanochaeta* as Johannsen placed it.

The bristles of the head are greatly reduced, as in *E. aliena*, the ocellars, postverticals and fronto-orbitals being minute and scarcely distinguishable from hairs.

The species is rare in collections. Aside from the three original specimens, all from Ithaca, N. Y., I know of only one other example, a female, College Station, Tex., February 1891 (Webster), labeled "from wheat" [U.S.N.M.]. From this, it may be inferred that the species ranges throughout eastern United States, though rarely collected.

#### 7. *Elachiptera* (E.) *aliena* Becker

*Elachiptera aliena* Becker, Ann. Mus. Nat. Hung. 10: 81. 1912. (Massachusetts.)

Despite its decidedly atypical arista, this species unquestionably belongs in the genus *Elachiptera*, from the general body structure, wing venation, and chaetotaxy. The bristles are reduced in size, however, and thus they do not stand out as strongly as in typical species. The short ocellars and postverticals are convergent

to the tips instead of cruciate, and the usually distinct two pairs of fronto-orbitals are distinguished under relatively high magnification only by being slightly thicker than neighboring fronto-orbital hairs.

The ocellar tubercle is gray pollinose. The humeri are polished black, and under low power the disk of the mesonotum also appears shining and without pollen, though under high power there are sparse, minute flecks of gray pollen on the anterior half. The legs are predominantly yellow, marked with black on the distal half of the mid and hind femora and median third to half of the mid and hind tibiae in the male, and on the distal two-thirds of the corresponding femora and virtually all the corresponding tibiae in the female.

Despite its generally atypical habitus, it is probably best associated with the *nigriceps* group.

The species does not appear to be very common. Relatively few specimens have been seen, though a number of localities are represented. Records are available from nine northeastern states, Illinois, Indiana, Maryland, Michigan, Missouri, New York, Ohio, South Dakota, and Virginia, and from the Province of Ontario. Western record: Custer, S. Dak., July 15, 1924 (F. M. Hull) [South Dakota State College Coll.].

8. *Elachiptera (Elachiptera) willistoni*, n. sp.

(= *E. flavida* and *E. attenuata* of

United States records)

Reddish yellow species, only the ocellar tubercle, a divaricate spot on the occiput, dorsal margin of the third antennal segment, and arista, black or dark brown; fore tibia and fore tarsus brown, and apices of other tarsi slightly infuscated.

Front moderately broad, twice the width of an eye and half the width of the head; frontal triangle smooth and polished, both triangle and ocellar tubercle without a trace of pollen, the triangle nearly touching the eyes at the vertex and the apex reaching the anterior margin of the front, the sides slightly convex; in profile the long axis of eye slightly diagonal; width of cheek 0.15–0.2 times the height of the head, commonly 0.17; arista broadly flattened for its entire length, sides parallel nearly to apex.

Thorax slender, narrower than the width of the head and 1.2 times as long as broad, shining and polished except for the sparsely pollinose

scutellum, a narrow prescutellar band of pollen, and a little pollen along the lower margin of the notopleuron; bristles long and strong, including 1+1 notopleural, 1 postalar, 1 posterior dorso-central, and 1 apical scutellar, the humeral and 1 subapical scutellar weak and little longer than hairs; scutellum trapezoidal, 0.8 times as long as broad at base, the apical bristles widely separated at the apical angles (Fig. 10).

Wing venation as usual in the genus; second costal sector slightly longer than the third; third vein nearly straight, third and fourth veins diverging from the base, fore crossvein opposite or only slightly beyond the middle of the discal cell.

Length, 2 mm.

*Type*.—Male, U.S.N.M. no. 58862.

Holotype male, and allotype, Orlando, Fla., February 9, 1918 (G. G. Ainslie). In the collection of the U. S. National Museum. Paratypes: FLORIDA: 19 (6 ♂, 13 ♀), Orlando, February 7–19, 1918 (G. G. Ainslie); 1 ♀, Gainesville, February 23, 1918 (G. G. Ainslie); 1 ♂, Paradise Key, February 23, 1919 (Schwarz and Barber); 1 ♂, Orlando, April 30, 1908 (Russell), "bred from onion" (det. Coquillett as *E. flavida*); 2 (♂, ♀), Lake Worth, and 1 ♂, Biscayne Bay (Mrs. Slosson) (det. Coquillett as *E. flavida*) [U.S.N.M.].

TEXAS: 1 ♂, Santa Maria, April 1, 1908 (McMillan), "bred from celery" (det. Coquillett as *E. flavida*); 8 (1 ♂, 7 ♀ ♀), Brownsville (E. C. Greene) (det. Malloch as *Crassiseta flavida*); 1 ♂, Brownsville, November 20, 1939 [U.S.N.M.]; 1 ♂, Hidalgo County, August 2, 1928 (R. H. Beamer) [Kansas Univ. Coll.].

*Elachiptera willistoni* is very close to several Neotropical species with all reddish body color. The specimens from the southern United States have in the past been determined either as *E. flavida* (Williston) or *E. attenuata* Adams, but the former has a slender, scarcely thickened arista and the latter has the arista flattened at the base but strongly attenuated distally. Available specimens of *attenuata* also show a slightly narrower cheek than in *willistoni*, the width measuring only 0.097–0.11 times the height of the head.

This is the form which I referred with some doubt to *E. attenuata* in 1938 (Journ. New York Ent. Soc. 46: 425), based on specimens from Brownsville, Tex., and Everglades and Lakeland, Fla.

### 9. *Elachiptera* (E.) sp.

1 ♂, Benson, N. C., August 9, 1934 (R. H. Beamer) [Kansas Univ. Coll.].

Apparently a new species, but the only example before me is headless. The species will not be described until additional material makes it possible to state the important head and antennal characters, but it is included here to make the key as complete as possible for the Nearctic species. In addition to the characters listed in the key, the abdomen is strongly rugose, appearing pitted when viewed from behind.

### 10. *Elachiptera* (E.) sp.

1 ♀, Washington, D. C., August 5 (J. M. Aldrich) [U.S.N.M.].

The example agrees with *E. willistoni* in all particulars except the presence of a broad median stripe of fine, bright gray pollen. Because of the consistency of this character elsewhere in the genus, it is reasonably certain that an undescribed species is involved here. In view of the single difference, however, and the possibility that it might be an aberrant condition in this case, I shall defer naming the species until an adequate series is available. As with the preceding form, it has been included in the key for the sake of completeness.

### 11. *Elachiptera* (E.) *tau*, n. sp.

Yellow to orange, with the arista, apex of third antennal segment at base of arista, an ocellar spot, a broad transverse band on the occiput between the eyes, a T-shaped mark covering the anterior fourth of the mesonotum and a broad stripe between the dorsocentral grooves, entire scutellum, metanotum, and the abdomen mesally and laterally, black; thorax and frontal triangle orange, rest of the head yellow, legs pale yellow.

Front approximately as long as broad, the width at the vertex not quite half the width of the head (0.45); frontal triangle and ocellar tubercle entirely polished, without pollen, the base of the triangle only 0.8 times the width of the front, the apex reaching the anterior margin of the front; cheek narrow, only 0.14 times the height of an eye; eye large, long axis nearly vertical; arista broadly flattened, the sides parallel nearly to the tip.

Mesonotum gray pollinose on the entire surface, though sparsely so in the intra-alar posi-

tions; scutellum even more strongly developed than in *costata* (cf. Fig. 12), elongate conical, 1.25 times as long as broad at base, with three pairs of strong marginal tubercles, the apical pair twice as long as broad at base, and closely approximated, separated by the width of the base of one tubercle.

Abdomen rugose, as described for *Elachiptera* sp. from North Carolina.

Veins yellow: second costal sector 1.16 times the third sector; third vein nearly straight, third and fourth slightly divergent from their bases; fore crossvein beyond the middle of the discal cell, as 15:10.

Length, 2.25 mm.

*Holotype*.—Female, Benton, Ky., June 30, 1939 (R. H. Beamer). Type in the Snow Collection, University of Kansas.

Besides the distinctive color pattern, this species has the longest scutellum and strongest scutellar tubercles of any American species of the genus.

### *Elachiptera punctulata* Becker

*Elachiptera nigroscutellata* Becker, Ann. Mus. Nat. Hung. 10: 80. 1912.

*E. punctulata* Becker (= *nigroscutellata* Becker, 1912, preoc.), *ibid.* 10: 645. 1912.

Becker described the species from a single specimen in the Winthem Collection in Vienna, said to be from North America. I have seen the type, and it bears only a small square of dark blue paper and a label, "Coll. Winthem." It is unlike anything that I have seen in thousands of American specimens, the black scutellum being short and broadly rounded with two pairs of long, fingerlike, yellow tubercles arising from the lower margin of the scutellum. The cheeks are linear. In these characters it is like the Ethiopian *Cyrtomomyia* Becker, and it is close to the genotype, *C. pulchra* Becker. I believe that *punctulata* was listed erroneously as North American, and that it is more probably of African origin. It was included in my key to the reddish species of *Elachiptera* of the Western Hemisphere (Journ. New York Ent. Soc. 46: 421. 1938), but at that time I had not studied the African fauna and did not recognize the true affinities of the species. If it should ever be discovered as a rare and aberrant American species, it will run in the present key to *E. tau*, from which it can easily be separated by the form of the scutellum and scutellar tubercles.



Recognition of the status of *punctulata* is especially important because of the discovery of the new American species with black scutellum and predominantly reddish thorax (*E. tau*). The latter is a typical *Elachiptera*, and is related to *costata* and *erythropleura*, but from the generalized description of *punctulata* one might easily have confused the two.

#### 12. *Elachiptera* (E.) *costata* (Loew)

*Crassiseta costata* Loew, Berl. Ent. Zeitschr. 7: 33. 1863. (Centuria III, No. 62.) (District of Columbia.)

The name *costata* is here definitely restricted to what has always been regarded as the "typical form," that with entirely black thorax. The so-called "variety" with reddish pleura is found to consist of two unnamed species, a relatively common one here described as *erythropleura*, and a less frequently collected form which I have called *angusta*.

Loew knew the form with red pleura, but he regarded such specimens as immature individuals of *costata*. The type series of *costata*, in the Museum of Comparative Zoology, contains one female with black pleura and a male and female with reddish pleura; the first female is hereby selected as lectotype of *Crassiseta costata* Loew.

The typical form of *costata* is further distinguished from *erythropleura* by having the disk of the mesonotum broadly pollinose, only the sides narrowly without pollen and shining. In no case have I found the pollen divided into stripes as in *erythropleura*, except of course in badly rubbed specimens which may appear striped because of pollen remaining in the dorsocentral depressions. The strong scutellar tubercles (Fig. 12) are characteristic of *costata*, *erythropleura*, and *tau*, besides a species left unnamed for the present.

Distribution: Common and widely distributed throughout eastern North America, and west to Arizona and Idaho. Specimens have been determined from 28 states, the District of Columbia, and five Canadian provinces: Arizona, Arkansas, Colorado, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, South Dakota, Texas, Utah, Virginia, Washington; Alberta, Manitoba, Ontario, Quebec, Saskatchewan.

#### 13. *Elachiptera* (E.) *erythropleura*, n. sp.

*Elachiptera costata* var. "a" Becker, Ann. Mus. Nat. Hung. 10: 78. 1912.

*Crassiseta costata* var. Sabrosky, Trans. Amer. Ent. Soc. 61: 245. 1935.

Like *costata*, especially in the form of the scutellum, but the pleuron reddish yellow, and the gray pollen on the mesonotum typically in three stripes, on the median and dorsocentral lines.

*Male, female*.—Head predominantly yellow, only the occiput, frontal triangle except for apex and basal corners, broadly flattened arista, and third antennal segment narrowly at base of arista, black; cheek narrow, one-fifth to one-sixth the height of an eye and one and one-half times the breadth of the arista; front broad, its length only 0.9 times its width at the vertex; frontal triangle large, occupying almost the entire front, the apex attaining the anterior margin of the front and the sides convex; both triangle and ocellar tubercle smooth and polished, without trace of pollen.

Mesonotum and scutellum black; pleuron predominantly reddish yellow, only the propleuron and metapleuron black; prosternum yellow; mesonotum chiefly shining, typically with three stripes of bright gray pollen on the median (acrostichal) and dorsocentral lines; scutellum as in *costata* (cf. Fig. 12), slightly longer than broad (1.05–1.2 times), with three pairs of marginal tubercles, the apical pair strongest, and each of the latter one and one-half times as long as broad at base. Abdomen shining brown to black.

Legs yellow, typically the fore tibia with a narrow and hind tibia with a broad median brown band, fore tarsus and the apical segment of mid and hind tarsi more or less browned.

Wing clear, veins brown, second costal sector nearly one and one-half times the third sector, third and fourth longitudinal veins parallel, fore crossvein joining the discal cell slightly beyond the middle. Halter pale yellow.

Length, 2–2.25 mm.

*Type*.—Male, U.S.N.M. no. 58863.

Holotype, male, and allotype, East Lansing, Mich., May 25, 1937 (C. W. Sabrosky). Type and allotype deposited in the U. S. National Museum. Paratypes, 152 specimens (61 ♂♂, 91 ♀♀). COLORADO: 1 ♀, Holly, September 6, 1938 (D. E. Hardy) [Kans. Univ.]. DISTRICT OF COLUMBIA: 3 (1 ♂, 2 ♀♀), Washington, April 8,

1945 (M. T. James) [James Coll.]; 6 (4 ♂♂, 2 ♀♀), Washington, August 14, 1906, July 11, May 1, 1922, and August 5 [U.S.N.M.]. GEORGIA: 1 ♂, Prattsburg, July 25, 1930 (P. W. Oman) [Sabrosky Coll.]; 1 ♀, Perry, March 17, 1945 (P. W. Fattig) [U.S.N.M.]. ILLINOIS: 19 (11 ♂♂, 8 ♀♀), Algonquin, Carlinville, Carbondale, Centerville, Dubois, Forest City, Freeport, Golconda, Grand Tower, Muncie, Urbana, and White Heath, various dates, April 3–November 11 [Illinois Nat. Hist. Survey and U.S.N.M.]. INDIANA: 1 ♀, Vincennes, May 9 (Aldrich); 27 (11 ♂♂, 16 ♀♀), Lafayette, April 12–October 22 (Aldrich) [U.S.N.M.]. IOWA: 1 ♂, Jefferson County, May 18, 1934 (H. Knutson); 1 ♀, Henry County, May 20, 1935 [Sabrosky Coll.]. KANSAS: 1 ♂, Lawrence (Aldrich) [U.S.N.M.]; 2 ♀♀, Manhattan, April 2 and October 8, 1932 (Sabrosky) [Sabrosky Coll.]. MARYLAND: 17 (8 ♂♂, 9 ♀♀), Cabin John, Glen Echo, Riverdale, and Plummers Island, April 28–October 21 (Shannon, McAtee, Malloch) [U.S.N.M.]. MASSACHUSETTS: 2 ♀♀, Beverly, September 10, 1870 (Burgess); 1 ♀, Cambridge, April 27, 1870 [U.S.N.M.]. MICHIGAN: 4 (3 ♂♂, 1 ♀), Detroit, April 18, 1938, and May 11, 1941 (G. Steyskal); 1 ♀, Lapeer, August 5, 1936 (Steyskal) [Steyskal Coll.]; 1 ♀, Battle Creek (Aldrich) [U.S.N.M.]; 6 (5 ♂♂, 1 ♀), East Lansing, April 28–June 4 (Sabrosky); 2 (♂, ♀), Lapeer, May 30, 1937 (Sabrosky); 1 ♂, Albion, May 16, 1936 (Sabrosky) [Sabrosky Coll.]. MISSOURI: 1 ♂, Atherton, September 18, 1915 (Aldrich) [U.S.N.M.]. NEW JERSEY: 1 ♀, New Brunswick, July 20 [Rutgers Univ. Coll.]. NORTH CAROLINA: 6 (1 ♂, 5 ♀♀), Raleigh, June 9–17, 1942 (C. S. Brimley); 1 ♀, Wilmington, March 7, 1939 (Harris and Wray) [North Carolina Dept. Agr. Coll.]. OHIO: 1 ♀, Columbus, July 9, 1886 (Wm. B. Alwood) [U.S.N.M.]; 7 (2 ♂♂, 5 ♀♀), Summit County, June 24–September 1 (L. J. Lipovsky) [Kansas Univ. Coll.]. PENNSYLVANIA: 1 ♀, Germantown, May 2, 1909 (Harbeck); 2 ♀♀, Philadelphia, April 25, 1897 (G. M. Greene) [U.S.N.M.]. SOUTH DAKOTA: 4 (1 ♂, 3 ♀♀), Elk Point, September 29, 1915 [U.S.N.M.]. TENNESSEE: 1 ♀, Knoxville, March 30, 1917 (Aldrich); 1 ♀, Union City, (G. I. Reeves); 1 ♀, Reelfoot Lake, April 14, 1944 [U.S.N.M.]; 8 (4 ♂♂, 4 ♀♀), Clarksville, July 1–15, 1939 (D. E. & A. T. Hardy, J. D. Beamer) [Kansas Univ. Coll.]. VIRGINIA: 1 ♀,

Falls Church, May 17 (N. Banks) [Sabrosky Coll.]; 17 (4 ♂♂, 13 ♀♀), Rosslyn and Dead Run, Fairfax County, April 21–November 18 (R. C. Shannon) [U.S.N.M.].

I have also seen examples from Minnesota, North Dakota, and Rhode Island, but these are not at present available.

This species has usually been recorded as an unnamed color variety of *costata*, but I am convinced that the different pattern of pollen on the mesonotum and the distinctive pleuron mark it as a separate species. In *costata*, also, the head is much darker, the face and cheeks are usually well infuscated, and the median clypeal plate (anteclypeus of Townsend) is shining black. Loew knew the form with red pleuron when he described *costata*, but he considered such individuals to be immature (cf. discussion under *costata*).

The characteristic color pattern of this and the following species (*angusta*) resembles that of *E. sibirica* (Loew) of Europe and Asia. All three seem to be related, but they are definitely distinct. The European species has the humeri, propleuron and sides of the mesonotum reddish yellow, the ocellar tubercle gray pollinose, and the entire mesonotum gray pollinose except for a small area on the anterior slope just behind the head.

Variation: In a few specimens, the sides of the frontal triangle are margined with red, leaving only the central area black. In such individuals the humeri may also be partly reddish. In pale specimens (possibly somewhat teneral), the legs seem entirely yellow. The three mesonotal stripes of pollen vary in width, but are almost invariably distinct: in only three atypical specimens is the pollen more generally distributed and not clearly trivittate.

#### 14. *Elachiptera (E.) angusta*, n. sp.

Near *E. erythropleura*, but without the stripes of pollen on the mesonotum, with narrower front, and with short, rather inconspicuous scutellar tubercles.

*Male, female*.—Color, general structure, wing venation, and size as described for *erythropleura*, differing in the following particulars:

Head longer than in *erythropleura*, the front slightly longer than broad (1.1 times), the frontal triangle narrower than in that species and contributing to the obviously longer appearance of the front; apex of the triangle

barely failing to attain the anterior margin of the front; cheek narrower, barely wider than the arista and one-eighth to one-ninth the height of an eye; mesonotum with no trace of pollen in the median and dorsocentral positions, only the notopleuron and a narrow pre-scutellar band sparsely gray pollinose, as is the scutellum; scutellum strongly narrowed in dorsal aspect, its length and width subequal (0.94–1.1 times), three pairs of scutellar tubercles close together on the distal half, the tubercles obviously smaller than in *costata* and *erythropleura*, the largest tubercle only about as long as broad.

*Holotype*.—Male, Woods Hole, Mass., September 1922 (A. H. Sturtevant). Allotype, Urbana, Ill., June 21, 1888 (Marten; Accession No. 14, 488; "swept from catalpa"). Paratypes: 2 ♂♂, Woods Hole, Mass., September 1922, and July 5–21, 1922 (both collected by Sturtevant). Holotype and one paratype in the American Museum of Natural History, allotype in the collection of the Illinois Natural History Survey, one paratype in the U. S. National Museum.

From the few available specimens, this species seems to be much less common than *erythropleura*, though the similarity in the distinctively reddish pleuron would undoubtedly have caused it to be recorded along with that species as a color variety of *costata*. Greasy specimens of *erythropleura* will appear to be without pollen and hence might be confused here; if the specimens are not in good condition, one should always check the scutellar tubercles to avoid misidentifications.

#### 15. *Elachiptera* (E.) *nigriceps* (Loew)

*Crassiseta nigriceps* Loew, Berl. Ent. Zeitschr. 7: 33. 1863. (Centuria III, No. 63.) (Pennsylvania.)

*Male, female*.—Head dark, the face and cheek usually predominantly black; frontal triangle large and broad, the sides convex (Fig. 13), both triangle and ocellar tubercle entirely polished black and without pollen; front broad, the length usually 0.85–0.95, occasionally up to 1.0, times the width at the vertex; palpus bright yellow in male, brown to black in female; arista broad, flat and parallel-sided to the tip (Fig. 7), sword-shaped, one-half to four-fifths as wide as the height of the cheek, slightly narrower in the male than in the female.

Thorax polished black except for inconspicuous gray pollen on the notopleuron and about the base of the wing, with piliferous punctures in slightly irregular rows, about two rows between the median and each dorsocentral row; mesonotum nearly square in appearance, and measuring 0.90–1.04 times as long as broad; scutellum short and broadly rounded, 0.75–0.9 times as long as width at base, with three pairs of minute tubercles bearing the short marginal scutellar bristles (Fig. 11); prosternum black.

Legs predominantly yellow, strongly marked with black, the black areas varying somewhat in extent between the sexes and among individuals of the same sex, but always with a fundamental pattern as follows: Distal third of the mid femur except for the knee, distal one-half to two-thirds of the hind femur, proximal one-half to two-thirds of the hind tibia, a variable distal portion of the fore tibia, fore tarsus, and the distal segment of the mid and hind tarsi. Occasional individuals may be paler, especially if teneral, or darker than the indicated extremes, but the constant presence of some black distally on the mid and hind femur and hind tibia seems to mark this form.

Length, 2.25–2.5 mm.

Very common and widely distributed in eastern North America, with a few specimens known from as far west as Manitoba and Washington. Records are available from the Canadian Provinces of Manitoba, Ontario, and Quebec; from the District of Columbia, and from 27 states (predominantly eastern), as follows: Alabama, Colorado, Illinois, Indiana, Iowa, Kansas, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Virginia, Washington, and Wisconsin.

#### 16. *Elachiptera* (E.) *pechumani*, n. sp.

*Male, female*.—As described for *E. nigriceps*, but the frontal triangle slightly shorter and its sides less convex, not occupying as much of the front as that of *nigriceps*; front yellowish to orange, and face yellow on sides only, centrally black, the general color of the head brighter than in *nigriceps*; palpi deep yellow to orange in both sexes; all coxae and femora bright yellow, the fore and hind tibiae and fore tarsus black, hind tarsus browned distally. To the eye,



a series of this form appears slightly larger and sturdier than specimens of *nigriceps*.

*Type*.—Male, U.S.N.M. no. 58864.

Holotype male, and allotype, 6 miles south of Middleport, N. Y., July 3, 1941 (L. I. Pechuman), "larvae breeding in large numbers in the base of the flowers of the wild iris, *Iris versicolor*." Types and paratypes deposited in the U. S. National Museum through the courtesy of Dr. Pechuman. Paratypes: 39 (21 ♂♂, 18 ♀♀), same data as type [U.S.N.M., Cornell Univ., Pechuman Coll., and Sabrosky Coll.]; 2 ♀♀, 13 miles south of Lapeer, Mich., May 30, 1937 (C. W. Sabrosky); 1 ♂, Eaton Rapids, Mich., May 30, 1942 (Sabrosky) [Sabrosky Coll.]; 1 ♂, Algonquin, Ill., September 19, 1894 [U.S.N.M.].

#### 17. *Elachiptera* (E.) *angustifrons*, n. sp.

Species somewhat intermediate between *nigriceps* and *costata*, differing from the former in having both frontal triangle and scutellum long and relatively narrow and all femora yellow, and from the latter in lacking pollen on the disk of the mesonotum.

*Male, female*.—Frontal triangle, occiput, lower margin of cheek, face centrally, and arista black, the rest of the head yellow, front deep yellow to orange, palpi yellow in both sexes; triangle and ocellar tubercle entirely polished black; front obviously longer than broad (Fig. 14), the length 1.1 times the width at vertex, the triangle likewise appearing longer and narrower than in species of the *nigriceps* group; eye distinctly emarginate opposite the lunule; cheek narrow, only 0.15 times the height of an eye; arista broad and flat, parallel-sided nearly to apex, its width almost equal to the height of the cheek.

Thorax as described for *nigriceps*, but obviously narrower, the length 1.09–1.1 times the width; scutellum decidedly longer and narrower than in *nigriceps*, 1.1–1.2 times as long as broad at base, the three pairs of marginal scutellar tubercles slightly longer than those of *nigriceps* but not as long and distinct as in *costata* (cf. Figs. 11, 12). Abdomen dark brown, with a large yellow spot above at the base, the basal segment elongated, occupying nearly half the length of the abdomen.

Legs predominantly bright yellow, the pattern as described for *pechumani*.

Length, 2–2.25 mm.

*Type*.—Male, U.S.N.M. no. 58865.

Holotype male, and allotype, Orlando, Fla., February 18, 1918 (G. G. Ainslie) [U.S.N.M.]. Paratypes: 5 (3 ♂♂, 2 ♀♀), same data as type; 2 (♂, ♀), Wilmington, N. C., June 29 (C. S. Brimley) [Sabrosky Coll.]; 1 ♀, Paradise Key, Fla., February 21, 1919 (Schwarz and Barber); 2 (♂, ♀), Bertrandville, La., February 12, 1944; 2 ♀♀, Chesapeake Beach, Md., July 27, 1913 (R. C. Shannon); 1 ♂, Near Plummers Island, Md., April 7, 1915 (Shannon); 1 ♀, Cabin John Bridge, Md., April 28, 1912 (Knab and Malloch); 1 ♂, San Antonio, Tex., April 8, 1907 (F. C. Pratt) [U.S.N.M.].

#### 18. *Elachiptera* (E.) *angustistylum*, n. sp.

*Male, female*.—As described for typical *nigriceps*, but the arista not as broadly flattened, in the female only two-fifths or less the height of the cheek, in the male slender and only slightly thickened, and in both sexes gradually tapering from base to tip, not parallel-sided as in *nigriceps* (Fig. 8, compared with Fig. 7).

Length, 2–2.25 mm.

*Type*.—Male, U.S.N.M. no. 58866.

Holotype male, and allotype, Spanish Fork, Utah (D. Elmo Hardy). Types and paratypes deposited in the U. S. National Museum through the courtesy of Dr. Hardy. Paratypes: 8 (1 ♂, 7 ♀♀), same data as type [Kansas Univ. and Sabrosky Coll.]; 1 ♂, Cedar, Utah, July 30, 1929 (G. F. Knowlton); 4 ♀♀, Geneva, Utah, April 28, 1933 (Knowlton), Hyde Park, Utah, June 11, 1938 (D. E. Hardy and G. S. Stains), Wellsville, Utah, May 11, 1939 (Knowlton), and Lakeview, Utah, September 20, 1930 (Knowlton) [Utah State Agr. College Coll. and U.S.N.M.]; 2 ♂♂, Scappoose, Oreg., April 23, 1938 (Schuh and Gray); 1 ♀, St. Helena-Scappoose, May 6, 1938 [Sabrosky Coll.].

Because of the unusually slender arista, not at all flattened, the males may be mistaken for the genus *Oscinella*, until one becomes used to the characteristic habitus of the genus *Elachiptera*, and to the character of the two pairs of well-developed fronto-orbital bristles.

This form is like typical *nigriceps* in all respects but the arista, and because of the relatively small difference might be considered only a subspecies, with a western range. Specific differentiation does not necessarily require large

differences, however, and in the absence of any evidence of subspeciation in the present case, I have regarded it as a distinct species.

#### THE DECIPIENS GROUP

The "*decipiens* group," which includes the remaining species, comprises a number of closely related forms which are characterized by a *nigriceps*-type of scutellum (Fig. 11: flat, rugulose disk, in dorsal view broadly rounded apically with 2 or 3 pairs of small tubercles), and usually the ocellar tubercle bright gray pollinose and mesonotum with 2 or 3 distinct stripes of gray pollen. In *californica* Sabrosky, the stripes are distinct but the ocellar tubercle is shining, and in *penita* Adams the stripes are absent but the ocellar tubercle is strongly pollinose.

In the Palearctic region, the group is represented by *Elachiptera cornuta* (Fallén) and its "varieties" (five recognized by Duda, the latest reviser). Typical *cornuta* and its "varieties" seem to parallel the forms of the *decipiens* group in North America, and it is possible that some of the European and American forms are the same and should be given the same name. Only material of typical *cornuta* is available to me, however, and while *vittata* (= *bilineata* Adams) is close, the slight differences have led me to continue to recognize the latter as distinct. *Elachiptera decipiens*, which is especially abundant in northwestern North America (Alaska to Colorado), and which might be expected to be a Holarctic species, seems to resemble *E. cornuta* var. *strobli* Corti (1909), but I have no examples of the latter for comparison. If they are the same, it should be noted that the name *decipiens* (1863) has priority by many years, and we are thus justified in any case in using the name *decipiens* here. The race or species which I have called *E. flaviceps* is apparently paralleled in Europe by *cornuta* var. *rufifrons* Duda; again, no material is available for critical comparison.

In view of Duda's classification of apparently parallel forms in Europe as merely "varieties" of one common and widespread species, the question also might well be raised whether the American species of the *decipiens* group are only varieties of one

species. In North America, however, (1) the segregates recognized here differ from each other in more than one character, (2) they show reasonable uniformity within the segregate in their significant characters, and (3) the available evidence suggests that the several segregates may have characteristic ranges. It is concluded, therefore, that the American forms are either good species, or at the very least, recognizable geographic races (i.e., subspecies).

In most members of this group, the two dorsocentral stripes of pollen are broad and distinct, but the median or acrostichal stripe is narrow, often tapered posteriorly, and frequently appearing to be absent. In general, in *formosa* the median stripe is relatively broad, in *vittata* it is usually present and evident though narrow, and in *decipiens* it is usually not at all evident and the dorsocentral lines are also narrow. Some intraspecific variation exists in the width of the stripes, however, and the appearance may be further influenced by the condition of the specimens.

#### 19. *Elachiptera* (E.) *formosa* (Loew)

*Crassiseta formosa* Loew, Berl. Ent. Zeitschr. 7: 32. 1863. (Centuria III, No. 61.) (District of Columbia.)

This is one of the rarest species of the genus in North America, judged from the paucity of records. The unique feature of the strongly incrassate hind femur is strikingly distinct. Unfortunately, no published description or key has described it with sufficient exactness to avoid possible confusion with *E. decipiens* or other species in which the hind leg is normally slightly enlarged.

Arista broad and flat as in *vittata*; frontal triangle polished black, but ocellar tubercle and posterior corners of triangle gray pollinose; triangle long, its apex barely failing to reach the anterior margin of the front; cheek narrow, only 0.12 the height of an eye; palpus yellow in both sexes. Thorax black, predominantly shining and polished, the disk of the mesonotum with three distinct stripes of gray pollen, the dorsocentral stripes broad, the median narrower, broadest anteriorly and tapering posteriorly, ending opposite the postalar calli, the prescutellar space between the dorsocentral stripes polished and without pollen; humeral

callus predominantly shining; mesonotal hairs more numerous than in the *nigriceps* and *costata* groups, with 4 or 5 irregular rows of piliferous punctures between the median and each dorsocentral position; mesonotum longer than broad, by over 1.15 times; scutellum gray pollinose, its outline like that of *nigriceps*, moderately short and broadly rounded, 0.9 times as long as broad at base, with three pairs of short and inconspicuous marginal tubercles, the tubercles equidistant from each other. Abdomen with basal segment elongate, longer than the next two combined and nearly half the total length of the abdomen, and yellow with sides narrowly brown; second abdominal segment dorsally chiefly yellow with a median brown spot; remaining segments brown. Fore and middle legs chiefly yellow, the fore tibia distally and fore tarsus dark, hind leg reddish yellow with darker tibia; hind femur markedly incrassate, its greatest width 2.0–2.8 times the diameter of the hind tibia and 1.5 times the greatest width of the fore femur.

I have seen only 10 specimens of true *formosa*, in addition to the two cotype females in the Museum of Comparative Zoology: ♂, North Carolina; ♂, Atlantic Beach, Fla. (Mrs. A. T. Slosson); ♀, Lafayette, Ind., August '8 (J. M. Aldrich) [U.S.N.M.]; ♀, Havana, Ill., May 1, 1912 [Ill. Nat. Hist. Survey]; 4 ♀ ♀, Mount Vernon, Va., February 28, 1915 (W. L. McAtee); 1 ♀, Dyke, Va., May 28, 1915; 1 ♀, North Carolina [Malloch Coll.].

A specimen from Mount Washington, N. H. (Mrs. Slosson) [U.S.N.M.], determined by Coquillett as *formosa*, is actually *E. vittata* Sabrosky. This specimen is undoubtedly the basis for the record published by Mrs. Slosson (Ent. News 7: 264. 1896) and repeated by Johnson (*List of the Diptera or two-winged flies of New England*: 279. 1925).

## 20. *Elachiptera* (E.) *vittata*, n. name

*Crassisetia bilineata* Adams, Kansas Univ. Sci. Bull. 2: 453. 1904. (Arizona.)

*Elachiptera bilineata* (Adams) Becker, Ann. Mus. Nat. Hung. 10: 79. 1912.

Preoccupied by *Chlorops bilineatus* Bigot (Bull. Soc. Zool. France 16: 279. 1891), referred to *Elachiptera* by Becker (1908, 1910), as a synonym of *E. bimaculata* (Loew).

This species is characterized by the broad, flat arista, short frontal triangle, gray pollinose ocellar tubercle, 2 or 3 stripes of gray pollen on

the mesonotum, and broadly rounded scutellum with 2 or 3 pairs of small marginal tubercles. The legs are predominantly yellow to reddish yellow, with some infuscation on the fore tibia distally, the fore tarsus, hind tibia, and hind femur toward the knee, rarely extensively infuscated. Some variation has been observed in the number of rows of hairs between the median and dorsocentral lines, 1 to 3 rows, and this varies the appearance from relatively sparsely to relatively densely haired.

It is the most widely distributed species of the *decipiens* group, for records are available from New York and New Jersey to California across the northern United States. The northward limits are uncertain, but it is interesting to note that all Alaskan material of the *decipiens* group thus far examined has been only typical *decipiens*.

The holotype, a female from Oak Creek Canyon, Ariz., now in the Snow Collection at the University of Kansas, has been personally examined.

Of all American forms, *vittata* is closest to the European *E. cornuta* (Fallén). I have been unable to satisfy myself that the two are the same species, however, and *vittata* has thus been regarded here as a distinct species.

Distribution: Records are available from Alberta, Manitoba, Saskatchewan, and from 14 states: Arizona, California, Idaho, Maryland, Michigan, Montana, New Hampshire, New Jersey, New York, Nevada, Ohio, Oregon, Utah, and Washington.

## 21. *Elachiptera* (E.) *californica*, n. sp.

As characterized in the key, and as described for *E. vittata*, differing from that species only in having the ocellar tubercle polished, not pollinose.

*Type*.—Male, U.S.N.M. no. 58867.

Holotype, male, Ellery Lake, Tioga Pass, Calif., 9,400 ft., July 3, 1927 (J. M. Aldrich). Allotype, Sequoia National Park, Calif., June 11, 1935 (P. W. Oman), Type and allotype in the U. S. National Museum. Paratypes: 1 ♀, Carmel, Calif., July 8, 1938 (M. Cazier); 2 ♂ ♂, San Jacinto, Calif., July 21, 1929 (R. H. Beamer) [Kansas Univ. and Sabrosky Colls.].

## 22. *Elachiptera* (E.) *penita* (Adams)

*Crassisetia penita* Adams, Journ. New York Ent. Soc. 16: 152. 1908. (Wisconsin.)



I have seen only one specimen that can be referred here, a female, Falmouth Heights, Mass., August 13, 1924 [Amer. Mus. Nat. Hist.]. It is 3 mm in length, somewhat larger than the other species of *Elachiptera*, and with the following characteristics: Arista narrow, only slightly broadened basally and strongly attenuated from base to apex; frontal triangle long, its apex nearly reaching the anterior margin of the front; ocellar tubercle gray pollinose; front relatively long, not appearing broad and square as in the other species of the group (except *formosa*), by actual measurement the length 1.0–1.07 times the width at the vertex; mesonotum without pollinose stripes, the disk polished black, the humeri, notopleura, supralar area, a narrow prescutellar band, and the scutellum, gray pollinose; median and dorso-central lines and the entire posterior slope of the mesonotum punctured and rugose; scutellum shorter than broad, the length 0.9 times the width at base and appearing subtruncate.

I have not seen Adams's cotypes (two males from Wisconsin), but Dr. Aldrich examined them in the University of Arkansas Collection in 1915. He thought that they were probably *formosa* Loew, but he noted that there were no gray stripes on the dorsum. This fact, with several points mentioned in the original description (large size, large triangle, etc.) makes it reasonably certain that the above specimen represents *penita* Adams. It is not a synonym of *formosa*, but a distinct species.

### 23. *Elachiptera* (E.) *knowltoni*, n. sp.

*Male, female*.—As described for *E. nigriceps*, except as follows: Head lighter in color, the front, face except for central depression, and lower and anterior margins of cheek, yellow; front broad, the length usually 0.92–0.96 times the width at vertex; frontal triangle shorter than in *nigriceps*, the apex not reaching the anterior margin of the front and sides less convex, obviously occupying less of the front than that of *nigriceps*; triangle polished black, but ocellar tubercle distinctly gray-pollinose; palpus bright yellow in both sexes; arista in both sexes only slightly thickened, short pubescent, not at all flattened, and thus resembling that of *Oscinella*; scutellum short and broad, 0.8–0.87 times as long as broad at base.

Legs usually rather extensively infuscated, all femora and tibiae, except bases and apices,

brown to black, fore tarsus black and other tarsi browned distally: in the palest specimen, the mid and hind femora broadly yellow at each end, and the fore femur infuscated only on outer surface.

Length, 2.25–2.5 mm.

*Type*.—Male, U.S.N.M. no. 58868.

Holotype male, and allotype, Randolph, Utah, September 21, 1938 (G. F. Knowlton and F. C. Harmston). Type and allotype deposited in the U. S. National Museum through the courtesy of Dr. Knowlton. Paratypes: 2 (♂, ♀), same data as type [Utah Agr. College Coll.]; COLORADO: 1 ♀, Electric Lake, La Plata County, June 28–30, 1919, about 8,400 ft. [Amer. Mus. Nat. Hist.]; 1 ♀, Holly, September 6, 1938 (D. E. and A. Hardy) [Kansas Univ. Coll.]; 1 ♀, Monument, August 6, 1938 (M. T. James, Urless Lanham) [James Coll.]; IDAHO: 1 ♂, Kellogg, August 14, 1926, altitude 2,305 ft. (R. W. Haegle) [Univ. of Idaho]. MONTANA: 1 ♂, Drummond, August 11, 1931 (R. H. Beamer) [Kansas Univ. Coll.]. NEVADA: 1 ♀, Austin, August 12, 1940 (R. H. Beamer) [Kansas Univ. Coll.]. UTAH: 1 ♀, Blue Creek, September 2, 1938 (Knowlton and Harmston); 1 ♀, Salina, August 16, 1938 (Knowlton and Harmston); 1 ♀, Lewiston, April 27, 1938 (Knowlton and Hardy); 1 ♂, Juab, April 23, 1935 (Knowlton and C. F. Smith); 1 ♂, Hurricane, August 13, 1938 (Knowlton and Harmston) [Utah Agr. College Coll.]; 1 ♀, Spanish Fork (D. E. Hardy) [U.S.N.M.].

### 24. *Elachiptera* (E.) *decipiens* (Loew)

*Oscinis decipiens* Loew, Berl. Ent. Zeitschr. 7: 40. 1863. (Centuria III, No. 76.) (Sitka, Alaska.)

Diagnosis: Arista usually somewhat flattened nearly to the apex, sometimes flattened basally and narrowing on the apical half or three-quarters, but in any case decidedly narrower than in *vittata* (cf. key, couplet 21); frontal triangle short, approximately three-fourths the length of the front; ocellar tubercle gray-pollinose; front appearing short and broad, or nearly square, by actual measurement the length only 0.87–0.95 the width at the vertex; mesonotum typically with two relatively narrow dorsocentral stripes of gray pollen. The species usually has a dark appearance, for the yellow on the head is dark, the posterior portions of the front and cheeks are more or less infuscated, and the legs are usually

rather extensively browned, the femora and tibiae more or less predominantly so with varying extent of reddish yellow at base and apex of each. Alaskan specimens are usually darker than those from localities in the United States and southern Canada.

This is definitely not typical *cornuta* Fallén, for the arista is narrower and the legs darker. Whether it is the same as some of the described "varieties" of *cornuta* remains to be determined. As already pointed out, it seems to be near *cornuta* var. *strobli* Corti (1909), and if they prove to be the same, Loew's name has priority.

The considerable amount of Alaskan material that I have seen in the genus *Elachiptera* has consisted entirely of *decipiens*, except for an occasional specimen of *Eribolus sudelicus*. Other than Alaska, I have seen the species from Alberta, Manitoba, Northwest Territory, and Saskatchewan, and from the States of California, Colorado, Idaho, Oregon, Utah, and Washington.

## 25. *Elachiptera* (E.) *flaviceps*, n. sp.

As characterized in the key; near *E. decipiens* but the arista slender, scarcely flattened beyond the basal segment; head with bright appearance, predominantly bright yellow, the

triangle reddish to brown; legs typically yellow, with scarcely any infuscation.

Length, 2-2.25 mm.

Type.—Male, U.S.N.M. no. 58869.

Holotype, male, Moscow, Idaho, June 2, 1908 (J. M. Aldrich). Allotype, Smith River, Calif., July 17, 1930 (Aldrich). Type and allotype in the U. S. National Museum. Paratypes: CALIFORNIA: 1 ♂, Del Norte County, May 27 [Deutsch. Ent. Museum, Berlin-Dahlem]; 2 (♂, ♀), Berkeley, June 20, 1947 (A. E. Pritchard); 1 ♂, Eureka, March 6 (H. S. Barber) [U.S.N.M.]. OREGON: 1 ♂, Hood River (Childs); 1 ♂, 5 miles west of Sisters, June 26, 1939 (Gray and Schuh); 1 ♂, Vernonia, April 23, 1938 (Gray and Schuh) [Sabrosky Coll.].

The only specimens that have been seen are from far western United States. It is possible that this is only a southern subspecies of *decipiens*. The relation to *cornuta* var. *rufifrons* Duda of Europe cannot now be determined.

Examples of this species could easily be mistaken for *Oscinella*, and would be so placed in most generic keys. Despite the slender, atypical arista, however, the presence of the usual two pairs of strongly developed fronto-orbital bristles and distinct though small marginal scutellar tubercles links the species unquestionably with *Elachiptera*.

# PROCEEDINGS OF THE ACADEMY

## MINUTES OF 420TH MEETING OF BOARD OF MANAGERS

The 420th meeting of the Board of Managers, held in the Cosmos Club, September 27, 1948, was called to order at 8:05 p.m. by the President, Dr. FREDERICK D. ROSSINI. Others present were: H. S. RAPPLEYE, N. R. SMITH, J. I. HOFFMAN, M. A. MCCALL, W. L. SCHMITT, F. G. BRICKWEDDE, F. M. DEFANDORF, W. N. FENTON, T. D. STEWART, C. F. W. MUESEBECK, W. W. RUBEY, W. A. DAYTON, M. A. MASON, C. L. GARNER, H. G. DORSEY, C. L. GAZIN, and, by invitation, H. E. McCOMB, L. V. JUDSON, K. F. HERZFELD, and J. E. GRAF.

The following appointments were announced by the President:

*Committee to study question of providing a more effective bond between Academy and affiliated societies:* To be identical with Committee on Functions and Policies of the Academy (see Minutes of 417th Meeting of Board).

*Committee on encouragement of science talent in the schools of the Washington area:* M. A.

MASON (chairman), A. T. McPHERSON, B. D. VAN EVERA, and FRANK THONE.

The President also announced that L. V. BERKNER had been appointed as chairman of the subcommittee for the Engineering Sciences of the Committee on Awards for Scientific Achievement, succeeding the late HARRY DIAMOND.

The chairman of the Committee on Membership, H. E. McCOMB, presented six nominations, five resident and one nonresident.

The chairman of the Committee on Monographs, Dr. L. V. JUDSON, reported that all galley proof for the monograph on *parasitic cuckoos of Africa* had gone back to the printer, the first quarter of the page proof had been returned, and the second quarter of the page proof was in the hands of the Committee. He announced that printing of the monograph was progressing rapidly and that it would very likely be out this year.

Dr. W. L. SCHMITT reported that publication